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April 25, 2019

By Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: *Transforming the 2.5 GHz Band*, WT Docket No. 18-120

Dear Ms. Dortch:

North American Catholic Educational Programming Foundation ("NACEPF") and Mobile Beacon have carefully considered the various rationalization proposals in the NPRM and the record against the Commission's stated goals for transforming the 2.5 GHz band in general, as well as its specific goals for rationalizing existing EBS license areas. These goals include: promoting efficient and intensive use of this spectrum;[1] facilitating "improved access to next generation wireless broadband, including 5G, for both educational and commercial uses";[2] providing new opportunities for existing EBS licensees to put this spectrum to its highest and best use;[3] promoting rapid, additional deployment through incumbents' expanding operations and providing new, consumer-demanded services;[4] eliminating irregularity of existing EBS geographic service areas that may have hindered deployment to-date;[5] and facilitating new entrants as new EBS white space will be based on easily determined, regular geographic boundaries after rationalization.[6] Rationalization, moreover, presents a tremendous opportunity to achieve the Commission's overarching goals of accelerating 5G deployment[7] and closing the digital divide, particularly for rural areas.[8]

As discussed in more detail below, the Commission can best achieve its goals by rationalizing all existing licenses to allow operators to "edge out" their networks from the current, outdated circular GSAs to standard geographic boundaries. This is the most expedient

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1 *Transforming the 2.5 GHz Band*, Notice of Proposed Rulemaking, 33 FCC Rcd. 4687, 4692 ¶ 10 (2018) ("NPRM").

2 *Id.*, Appendix B at 4710 ¶ 2.

3 *Id.* at 4691 ¶ 9.

4 *Id.* at 4692 ¶ 10.

5 *Id.*, Appendix B at 4710 ¶ 2.

6 *Id.* at 4693 ¶ 16.

7 FCC, *The FCC's 5G FAST Plan*, https://www.fcc.gov/5G (last visited Apr. 24, 2019).

8 FCC, *Bridging The Digital Divide For All Americans*, https://www.fcc.gov/about-fcc/fcc-initiatives/bridging-digital-divide-all-americans (last visited Apr. 24, 2019).

way to facilitate additional investment and deployment, empowering existing licensees and operators to deploy immediately to the areas adjacent to the current GSAs,[9] accelerating both 5G and rural deployment. Rationalizing license areas for *all* EBS licensees is also the best way to address the unusable patchwork of unassigned areas created by the current circular GSAs. Conversely, excluding certain incumbent licensees would create a system of license areas that is even *more* complex than the one that exists today, with some licenses bounded by GSAs and others rationalized along standardized, identifiable boundaries. This would only perpetuate unusable slivers of spectrum that would otherwise be rapidly put to use by incumbents and hinder further commercial deployment, including expansions of planned 5G network investment. Finally, the rationalization process should ensure that licensees retain their existing license areas. Loss (or reduction) of existing license areas would have catastrophic consequences, stranding investment and jeopardizing existing levels of service that millions of consumers currently rely on.[10]

In all events, the Commission should reject any proposal that would allow this valuable spectrum to be warehoused. Rather, it should ensure that newly licensed EBS areas—whether licensed through rationalization, windows, or auctions—translate into increased deployment. By applying reasonable build-out requirements to newly rationalized areas, the Commission can effectively address "windfall" concerns, rather than letting such concerns dictate the policy at the expense of the rapid, robust commercial and public interest benefits that rationalization would provide.

I. RATIONALIZATION IS NEEDED TO FACILITATE RAPID AND INTENSIVE USE OF EBS SPECTRUM.

Rationalization is a critical step to modernize the EBS band. Sprint, the dominant operator of 2.5 GHz spectrum, has told the Commission that rationalizing EBS GSAs is "*the most important thing* the Commission can do to bolster 2.5 GHz deployments."[11] Additionally, as the Wireless Communications Association International ("WCA") has explained, rationalizing all incumbent licenses "by expanding *each* GSA to the county boundary" is needed to avoid the technical and operational confusion that would be caused by a patchwork of non-standard

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[9] By contrast, attempts to auction the unassigned spectrum adjacent to existing GSAs could delay deployment by as many as 10 years, depending on the type and complexity of the auction. *See* Comments of Voqal at 25-27 (unless otherwise noted, all comments and reply comments refer to those filed in WT Docket No. 18-120 on August 8, 2018 and September 7, 2018, respectively).

[10] Industry's investment in wireless deployment in the United States is, in no small part, a function of investors' confidence in the stability of FCC policy. For the Commission to set the precedent that it might significantly reduce the license areas of licensees who are actively using this spectrum to provide service to the public, and have invested accordingly, would send a sobering message to anyone considering a significant investment in United States' wireless infrastructure in the future.

[11] Reply Comments of Sprint Corporation at 6 (emphasis added) ("Sprint Reply Comments"); *See also* Reply Comments of the Wireless Communications Association International at 5 ("WCA Reply Comments").

GSAs.[12] NACEPF and Mobile Beacon agree that rationalization is a necessary first step for the Commission to achieve its goals for the 2.5 GHz band.

A. Rationalization Is the Most Expedient Way to Accelerate Both Rural and 5G Deployment.

The record is clear that rationalization is the surest tool the Commission has to accelerate deployment in areas adjacent to existing GSAs, accelerating network investments. In rural areas, rationalization would allow EBS licensees to quickly and cost-effectively connect rural communities that remain unserved or underserved today. At the same time, rationalization would extend critical coverage areas in urban markets, filling in existing coverage gaps. In particular, a low threshold for rationalization, as suggested by many commenters in this proceeding,[13] would accelerate both rural and 5G deployment, allowing current rural licensees to reach hard-to-serve communities and expanding the urban areas in which EBS is primed to deliver 5G wireless broadband service.

In stark contrast, should the Commission decide *not* to rationalize existing GSAs and proceed with an auction, it would likely be years before this valuable spectrum is put to use by anyone. By then, the "race to 5G" may well be over. Worse still, the millions of rural Americans that would have benefitted from county-based rationalized areas will not just be left behind in the 5G race, but also, in some cases, left with "zero Gs" on the wrong side of the digital divide.[14]

Rationalization and Rural Deployment. The record makes clear that where EBS spectrum has been licensed, it has been deployed.[15] This is particularly remarkable in rural

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[12] *See* WCA Reply Comments at i, 12-13 (emphasis added).

[13] *See, e.g.*, Comments of Sprint Corporation at 6; Joint Reply Comments of National EBS Association and Catholic Technology Network at 5; Reply Comments of Tribally-Owned and Tribally-Controlled Rural Telecom Entities at 6; Comments of VIYA at 14; Reply Comments of Educators and Broadband Providers for American Rural Communities at 8; Reply Comments of Hispanic Information and Telecommunications Network, Inc. at 5. We agree with the bulk of record comments, that the Commission should adopt a geographic (not population-based) threshold to avoid the significant complexity associated with accurately determining the exact populations covered by each licensee in each county.

[14] The myriad problems with auctions to allocate EBS spectrum, including the delays inherent in any such auction, are discussed in more detail in prior record filings. *See* Reply Comments of North American Catholic Education Programming Foundation, Inc. and Mobile Beacon at 34-39 ("NACEPF and Mobile Beacon Reply Comments") (discussing record filings that describe the opportunity costs and other problems with EBS auctions held prior to rationalization and windows).

[15] *See, e.g.*, *Application of the Board of Trustees of Northern Michigan University for a New Educational Broadband Service Station*, Memorandum Opinion and Order, 23 FCC Rcd. 11,832 (WTB 2008); *Application of the Nisqually Indian Tribe for a New Educational Broadband Service Station*, Memorandum Opinion and Order, 28 FCC Rcd. 15,569 (WTB BD 2013); *Applications of Kings County Superintendent of Schools for New Educational Broadband Service Stations*, Memorandum Opinion and Order, 31 FCC Rcd. 13,281 (WTB BD 2016); *Application of the Monterey County Superintendent of Schools for a New Educational Broadband Service Station*, Memorandum Opinion and Order, 31 FCC Rcd. 13,274 (WTB BD 2016); Application of Louisa County Public Schools for Special Temporary Authority, ULS File No. 0008014101 (granted Feb. 27,

areas, where EBS licensees have deployed networks to quickly and cost-effectively reach communities that were previously unserved by commercial providers.

Northern Michigan University ("NMU"), for example, has built a robust educational broadband network covering over 12,000 miles of rugged, rural terrain, that has connected students and families with high quality broadband service.[16] Rationalization is the fastest way to expand coverage in such rural, and otherwise unconnected, areas because it would fill what NMU describes as the "inefficient and disruptive gaps between existing licensed service areas."[17] As seen in the map below, a 10 percent rationalization threshold would erase these gaps and would allow NMU to immediately expand its network to reach unserved households without waiting years for more complicated solutions. By contrast, an 80 percent county rationalization proposal[18] would do little to solve this problem, continuing to impose artificial constraints on NMU's deployment, continuing to leave gaps that no other provider will fill, and continuing to relegate these communities to the wrong side of the digital divide.

2018); Application of the Havasupai Tribe for Special Temporary Authority, ULS File No. 0007981254 (granted Mar. 1, 2018).

[16] Comments of Northern Michigan University at 4 ("NMU Comments"). Indeed, the recently released report from the State Educational Technology Directors Association (SETDA) highlighted the NMU EBS deployment but noted that, if the Commission adopts rules eliminating educational use and eligibility requirements "NMU's ability to expand and build out Michigan's Lower Peninsula would be forfeited." *See* Christine Fox & Rachel Jones, *State K-12 Broadband Leadership 2019: Driving Connectivity, Access and Student Success*, SETDA 12 (Apr. 2019), *available at* https://www.setda.org/master/wp-content/uploads/2019/04/Broadband-State-Leadership-2019_final.pdf.

[17] NMU Comments at 6.

[18] One commenter has proposed such an 80 percent threshold for rationalization. *See* Comments of Midcontinent Communications at 7-12. In addition, this figure approximates the results from a 75 percent threshold, which was referenced as one possible upper-level threshold in the NPRM. *See* NPRM at 4693 ¶ 17.

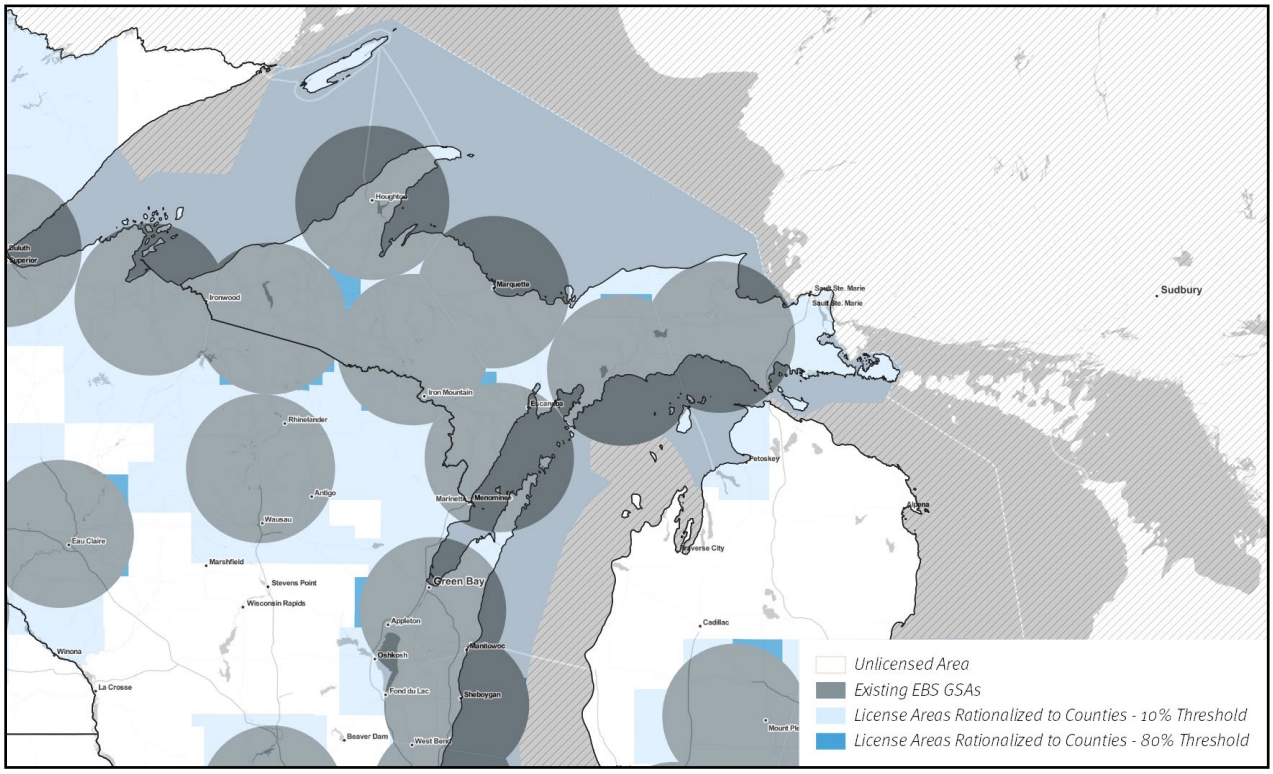

Figure 1— Comparison of the impact on rural deployment of 10 percent and 80 percent rationalization thresholds for Michigan's Upper Peninsula.

Similarly, in Maine, rationalization is the fastest way to extend EBS coverage and help drive deployment to rural counties and connect hard-to-reach businesses and consumers.[19] As shown on the following map, rationalization, using a low threshold (such as 10 percent) for county expansion, would swiftly and effectively address this problem, particularly if conditioned on build-out requirements, as suggested below.[20]

[19] *See* Samantha York, *Broadband or bust: Why poor access to high-speed internet is leaving Maine in the dust*, News Center Maine (Feb. 21, 2019), https://www.newscentermaine.com/article/news/broadband-or-bust-why-poor-access-to-high-speed-internet-is-leaving-maine-in-the-dust/97-860d8393-b268-47fa-ac38-7f265869a036.

[20] *See infra* Section II.

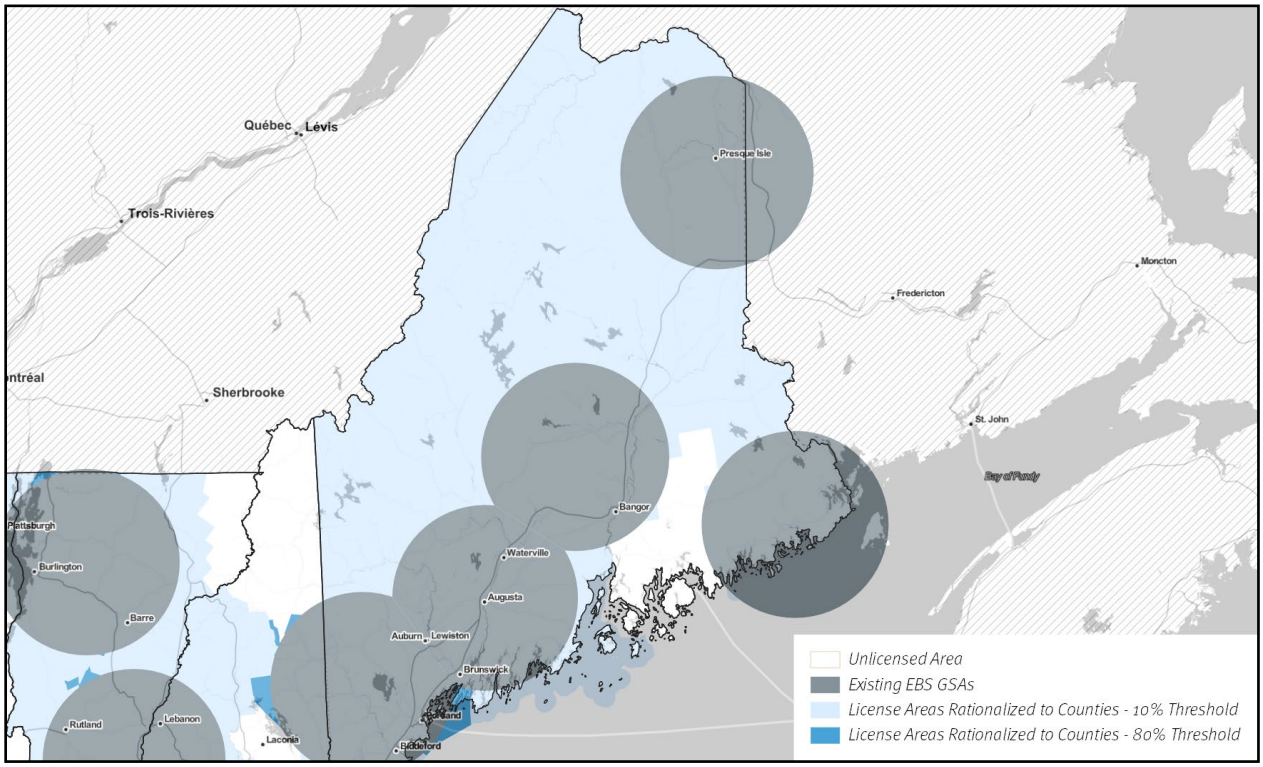

Figure 2 — Comparison of the impact on rural deployment of 10 percent and 80 percent rationalization thresholds for Maine.

Rationalization and 5G Deployment. Rationalization will also accelerate 5G investment and deployments. Through public-private partnerships, Sprint has extensively invested in wireless broadband networks using EBS spectrum for its 4G, and soon-to-be-launched 5G networks. Sprint recently announced the first 5G data call using 2.5 GHz spectrum, and that it will launch 5G service in nine cities in the first half of 2019.[21] As Sprint has explained, EBS spectrum is "the linchpin to its launch of 5G" and this multi-city deployment "would not be possible without the secondary market leasing arrangements and mutually beneficial partnerships that have developed over many years between Sprint and the EBS community."[22]

Simply put, removing the circular, difficult-to-administer, and operationally impractical GSA limits on 2.5 GHz coverage would make it easier for Sprint to more quickly bring 5G service to more places. In particular, rationalization using a low threshold will expand the current circular limits of the 2.5 GHz GSAs leased by Sprint, immediately bringing new

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[21] News Release, Sprint, *Sprint Completes World's First 5G Data Call Using 2.5 GHz and Massive MIMO on Commercial Network* (Jan. 10, 2019), https://newsroom.sprint.com/sprint-completes-worlds-first-5g-data-call-using-25-ghz-and-massive-mimo-on-commercial-network.htm.

[22] *See* Sprint Reply Comments at 1-2.

coverage areas into Sprint's network, including communities adjacent to the planned 5G networks in these nine cities.[23]

In addition, such rationalization would automatically and immediately increase the educational services and accounts available through Sprint's educational and non-profit lessors—giving more students and families access to programs like library-loaned hotspots[24] and WiFi on school buses.[25] As NACEPF and Mobile Beacon explained in their previous comments, over 70 percent of the low-income Americans who obtained service through one of Mobile Beacon's school or nonprofit clients had never had home broadband before our program reached them—despite falling in the coverage footprint of one or more commercial providers. The "pricing divide" that perpetuates the digital divide[26] is being addressed by EBS licensees today—as evidenced by commenters who have made clear that absent Mobile Beacon's EBS offering, they would have to either cut service or forgo broadband altogether.[27] Rationalization would mean that millions of new students and families would be able to participate in these EBS programs.

As seen in the figure below, however, an 80 percent threshold makes very little spectrum available for immediate deployment and will do little to advance any potential 5G expansion. The result of not allowing incumbents to expand through rationalization is that students and families in these GSA-adjacent communities will continue to be deprived of network investments and services enjoyed by their neighbors.

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[23] *See id.* at 4 (explaining that "[m]ost existing EBS excess capacity leases . . . provide for the commercial service provider to have immediate access to any modified GSA.").

[24] Indeed, Mobile Beacon piloted the library hotspot lending program in Providence, RI, which has now been replicated nationally. *See* Comments of North American Catholic Educational Programming Foundation and Mobile Beacon at 44, 47 ("NACEPF and Mobile Beacon Comments"); *see also* Comments of Enoch Kindseth, Normal Public Library ("Normal Public Library has been circulating mobile hotspots made available through Mobile Beacon via the Sprint network. . . . This has opened up opportunities for many underprivileged individuals to get access to the Internet and leverage that access to better their lives.").

[25] *See, e.g.*, Comments of North Carolina Department of Information Technology, Broadband Infrastructure Office at 4; Comments of Nebraska Department of Education (NDE), Nebraska Educational Television (NET), and the State of Nebraska Office of the Chief Information Officer (OCIO) at 7-8; NACEPF and Mobile Beacon Comments at 15-16; NEBSA, *University of Central Florida Expands Student Services Using EBS*, https://nebsa.org/index.cfm/ebs-in-action/university-of-central-florida-expands-student-services-using-ebs/ (last visited Apr. 24, 2019).

[26] *See* Tyler Cooper, *The digital divide is worse than we thought*, TechRadar (Apr. 23, 2019), https://www.techradar.com/news/the-digital-divide-is-worse-than-we-thoughtful (explaining that research shows 146 million rural Americans do not have access to a low-priced broadband plan—for example, virtually 100 percent of the population in Massachusetts has access to a low-priced broadband plan; in contrast, only 1 percent of Montana residents have access to a low-price plan).

[27] *See* NACEPF and Mobile Beacon Reply Comments at 2, 14-17.

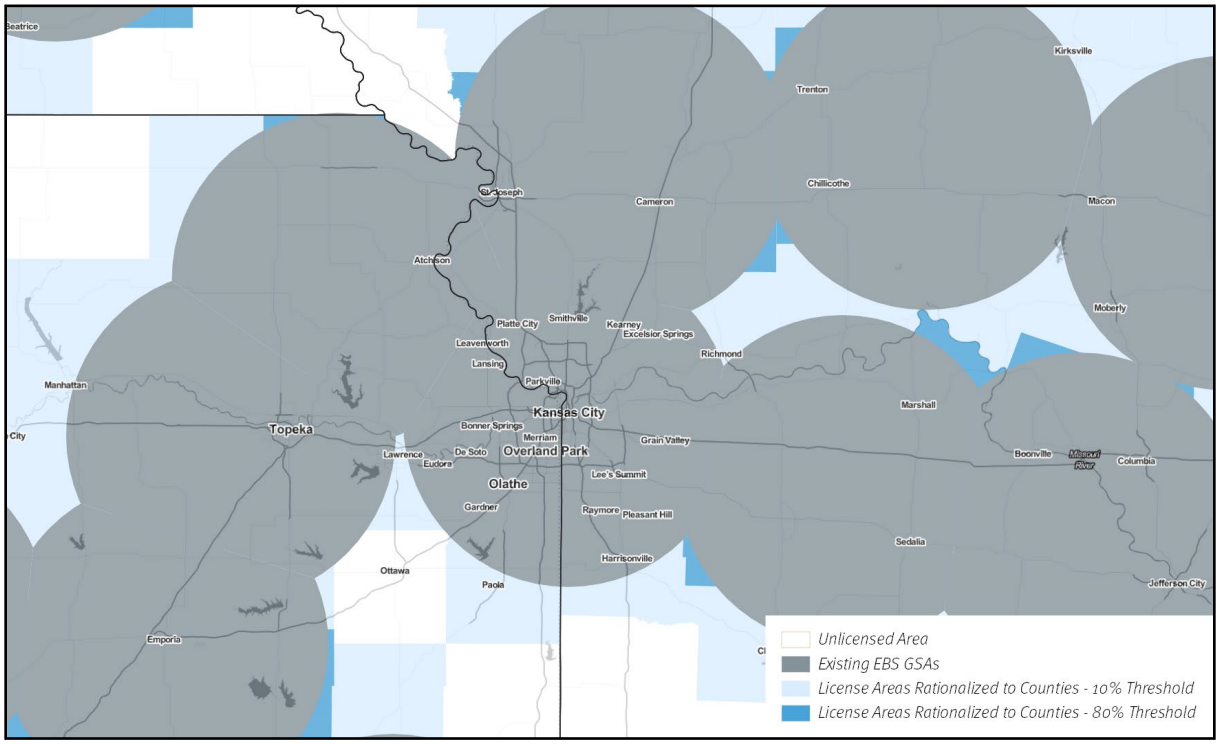

Figure 3 — Comparison of the impact of 10 percent and 80 percent rationalization thresholds on Kansas City, one of the nine cities where Sprint plans to launch 5G in the first half of 2019.

In short, for both rural connectivity and 5G investment, rationalization is the most effective tool the Commission has to ensure EBS white space that is adjacent to existing licensed areas is immediately put to use by EBS licensees—as well as national operator and WISP lessees—that already have the wherewithal, incentives, and infrastructure in place to deploy wireless service quickly and cost-effectively.[28] Such an approach would achieve the important goals outlined in the NPRM while still leaving ample white space—but with regularized, practical, county-based boundaries—available for licensing to new entities.[29] The end result

[28] As the comments in the record explain, automatic rationalization is the fastest and least burdensome way to advance deployment. *E.g.*, Sprint Reply Comments at 6 ("Sprint agreed with the Commission's proposal that EBS county expansion occur automatically"); Reply Comments of Voqal at 22 ("An automatic county boundary rationalization will more effectively deliver on the Commission's goal of putting irregular shaped areas between licenses . . . immediately into the pipeline for mobile broadband buildout."); WCA Reply Comments at 13 ("[R]ationalization to country [sic] boundaries . . . can be implemented automatically"). But even a rationalization approach that involves a priority window—so long as it is applied equally to all licensees—would result in simpler and quicker deployment than conducting an auction without standard areas for incumbent GSAs. As noted, some parties in the record have estimated that auctions could delay license allocations—and more importantly, deployment—for as many as 10 years, depending on the type of auction. *See* Comments of Voqal at 25-27.

[29] *See* WCA Reply Comments at 14-15. According to Sprint, using a 10 percent threshold, about 31.5 percent of the nation's 3200 counties would remain available for EBS white space licensing. Sprint Comments at 6. Under its proposed no-threshold approach, WCA estimates that the EBS spectrum remaining after rationalization would cover over 3.4 billion MHz/pops. WCA Reply Comments at 14.

would be a fully rationalized band plan capable of ensuring that *all* EBS spectrum is intensively used.

B. Rationalization Is Needed to Facilitate Intensive Use of EBS Spectrum.

Rationalization is also the best way to ensure the most intensive use of EBS spectrum. Rationalizing to standard geographic areas can simply and quickly eliminate the small slivers of unlicensed spectrum between existing GSAs that cannot economically be served independently from other nearby license areas.

These issues are one reason why the vast majority of commenters to address this issue in the docket resoundingly support county-based rationalization.[30] As Figure 4 below confirms, because counties are substantially larger and tend to be aligned with community boundaries, rationalization along county boundaries is the best way to address the small slivers of unused spectrum between license areas. Moreover, county-based rationalization will ensure that the reconfigured license areas will be of sufficient size that a new licensee could efficiently deploy there. As the Commission explained in its recent order in the 3.5 GHz band, "county-based licensing will allow [licensees] to take advantage of economies of scale, which will reduce deployment costs."[31]

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[30] *E.g.*, Joint Reply Comments of Community Telecommunications Network and Michigan Education Technology Leaders at 8 ("Existing GSAs should be rationalized by extension to county boundaries."); Reply Comments of Midcontinent Communications at 2 ("County-sized licenses provide flexibility for small and large commercial developers and should be adopted for incumbents and new licensees."); NACEPF and Mobile Beacon Reply Comments at 2 ("[T]he Commission should expedite deployment of EBS white spaces by aligning EBS license areas with county boundaries."); Reply Comments of Tribally-Owned and Tribally-Controlled Rural Telecom Entities at 7 ("Rationalization of incumbent licenses should be done at the county level."); Reply Comments of Select Spectrum at 3 ("[T]he FCC should create a structure that allows small companies to bid on and acquire county-sized licenses."); Sprint Reply Comments at 4 ("[A] county-based approach . . . will accelerate the access to wireless broadband at 2.5 GHz in unserved rural areas."); Reply Comments of Views On Learning, Inc. at 1 ("EBS GSAs Should Be Rationalized to County Boundaries that Better Align With Existing Population Centers."); Reply Comments of Voqal at 22 ("The record demonstrates broad support for a rationalization process that would expand existing licenses to the nearest county boundary."); WCA Reply Comments at 2 ("The Commission should rationalize legacy EBS license areas by expanding them to the nearest county boundaries."); Reply Comments of Bridge the Divide Foundation, Inc. and Rocky Mountain Broadband, LLC at 5 ("The Commission should rationalize existing GSAs using county boundaries ."); Joint Reply Comments of National EBS Association and Catholic Technology Network at 4 ("CTN and NEBSA agree with the many parties who support the idea of expanding existing EBS GSAs automatically to county boundaries as opposed to census tracts."); Comments of Educators and Broadband Providers for American Rural Communities at 6-7 ("County size represents the 'Goldilocks' of GSA size for new EBS licenses."); Comments of the Imperial County Office of Education / California K-12 High Speed Network at 20 ("We recommend that the new GSA be based on county boundaries as they align better with school district service areas."); NMU Comments at 6-7 ("NMU believes that counties would be the most appropriate basis for both rationalization and new licensing.").

[31] *Promoting Investment in the 3550-3700 MHz Band*, Report and Order, 33 FCC Rcd. 10,598, 10,611 ¶ 26 (2018). By contrast, the Commission found in that proceeding that census-tract license areas "would cause significant difficulties in deployment of large-scale networks for mobile 5G use." *Id.* at 10,608 ¶ 21. The Commission also found that because of their small size, census tracts "could raise insurmountable technical issues in urban areas." *Id.* at 10,608 ¶ 22 (internal quotation marks omitted). Alternatively, to eliminate slivers

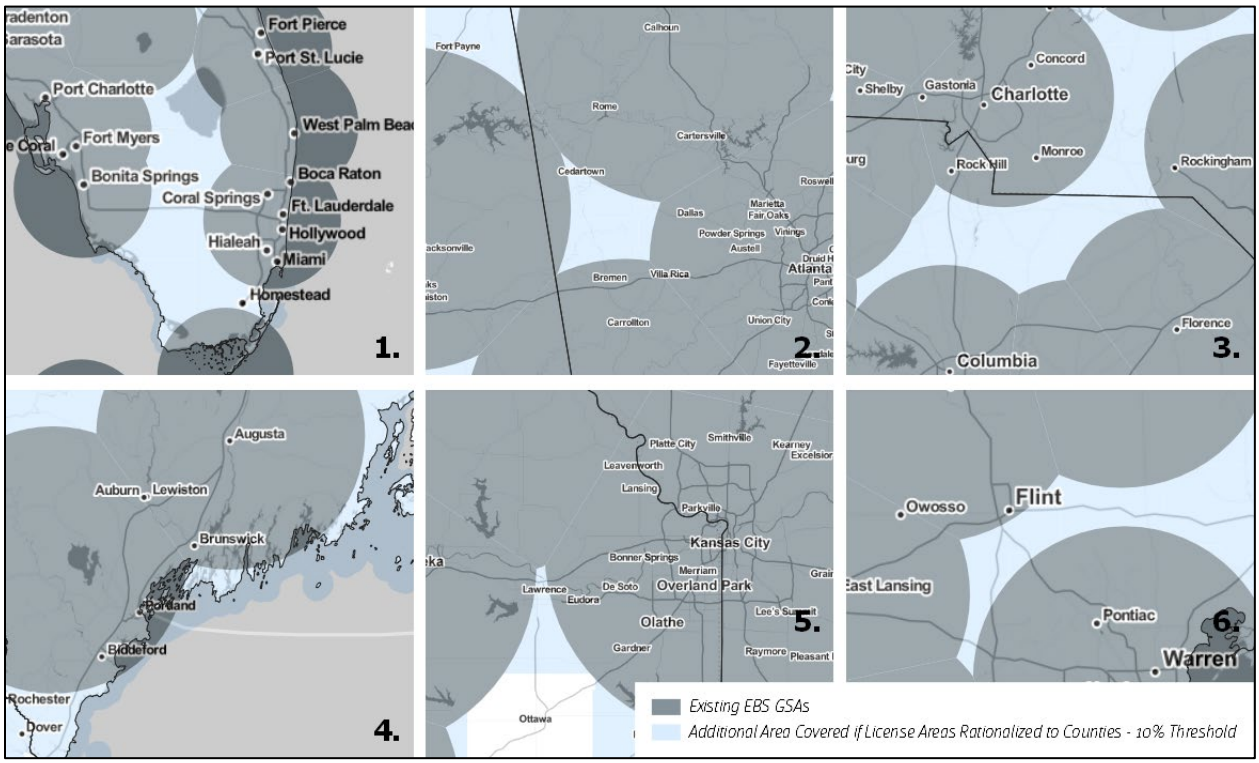

Figure 4 — County-based rationalization would fill the slivers of whit space created by circular GSAs in: 1) Southern FL; 2) Atlanta, GA; 3) numerous communities in Charlotte, NC; 4) Southeast, ME; 5) Lawrence, KS; 6) numerous communities outside Flint, MI.

Absent rationalization, the current GSAs leave isolated, oddly-shaped areas that will be economically and operationally challenging for new licensees to serve. In these unlicensed slivers, the *best-case* scenario would be for an existing co-channel licensee in an adjacent area to acquire these white spaces at auction at bargain prices. As NACEPF and Mobile Beacon previously explained, moreover, overlay auctions are not just technically and operationally complicated, but have previously resulted in distorted outcomes that undermine the purpose of holding an auction in the first place.[32] Worse still, even as an overlay auction would distort the

altogether, the Commission could lower the threshold to zero, such that any county touched by an EBS licensee today would be automatically covered and eligible for immediate deployment. *See* WCA Comments at 11 (supporting a proposal in which "existing GSAs that cover any portion of a county and are immediately adjacent to unlicensed areas in the county would expand to fill such adjacent unlicensed area up to the county boundary lines").

[32] The comparable 2009 BRS overlay auction, for example, raised merely $19.4 million. FCC, *Auction 86: Broadband Radio Service*, *Summary*, https://www.fcc.gov/auction/86 (last visited Apr. 24, 2019). *See also*

market and suppress auction revenues, it would also tend to freeze smaller rural broadband providers out of any auction for newly available overlay spectrum.[33] Most likely, however, without rationalization, many of these slivers will remain fallow due to the infeasibility of covering these small, generally rural, geographies. This is plainly contrary to the Commission's goals in this proceeding, as well as its overall charter to ensure efficient use of spectrum.

Finally, the Commission correctly noted in the NPRM that rationalizing existing license areas will facilitate new entry into the 2.5 GHz band as the remaining spectrum would then be allocated with "regularity in the shape and size of white spaces."[34] Rationalization is thus a critical first step regardless of how the FCC determines to issue remaining EBS licenses.[35] In addition to the benefits of rationalization, there would still be "ample opportunity" for new entrants.[36] Indeed, Sprint has estimated that, using a 10 percent minimum threshold, 31.5 percent of the nation's 3,200 counties would remain available for EBS white space licensing."[37]

C. Rationalization Should Apply to All EBS Licensees Equally or the Commission Will Create a More Cumbersome, Irrational Band Plan.

To achieve the Commission's goals, rationalization should treat all incumbent EBS licensees the same way. All current licensees comply with Commission rules and are serving educational entities. Thus, there is no reasonable basis for allowing some licensees to rationalize their service areas while excluding others.[38] Not only would exclusions be unjustified and

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NACEPF and Mobile Beacon Reply Comments at 37-38 (discussing the materially-depressed proceeds that resulted from the 2009 2.5 GHz BRS overlay auction held under similar circumstances).

33 Many WISPs and other rural providers have expressed an interest in this spectrum (whether through public-private partnerships with educational institutions or acquiring the spectrum directly). Such operators, however, are unlikely to succeed in acquiring spectrum in an overlay auction due to competition from an existing licensee or lessee operator that will already have rights to the underlying GSA. The areas for any EBS overlay auction must be sufficiently large enough to surround the underlying existing GSA licenses and still make adequate spectrum available for economic and technical network deployment. In the comparable BRS overly auction, for example, the FCC auctioned Basic Trading Areas (BTAs), which are substantially larger than counties, carving out the underlying existing licensees' 35-mile radius GSAs. *See* FCC, *Auction 86: Broadband Radio Service*, *Fact Sheet*, https://www.fcc.gov/auction/86/factsheet (last visited Apr. 24, 2019). Compared to new rural entrants, incumbent operators are not only likely to be better funded in any auction to acquire such larger areas, but will also be able to take advantage of the efficiencies that flow from having already deployed network operations in the underlying GSAs.

34 NPRM at 4693 ¶ 16.

35 *See* Sprint Reply Comments at 4; WCA Reply Comments at 5.

36 *See* WCA Reply Comments at 14.

37 Sprint Comments at 6.

38 The NPRM implies, for example, that national licensees could be excluded from parts of the rationalization process. *See* NPRM at 4697 ¶ 31. In fact, as NACEPF and Mobile Beacon have explained, national EBS licensees are often best positioned to negotiate partnerships with commercial operators that provide significant educational benefits and capture economies of scale. NACEPF and Mobile Beacon Comments at 2; NACEPF and Mobile Beacon Reply Comments at 4-7.

arbitrary, they would also undermine rationalization's potential to promote investment by simplifying license boundaries and accelerating deployment.

In fact, a band with a *combination* of rationalized and unrationalized license areas will be even more complex and difficult to administer than the state of the EBS band today. Such an approach would require two different classes of licenses to be created to distinguish between rationalized licenses with regular boundaries, and non-rationalized boundaries that would continue to be defined using the existing, complex "splitting-the-football" methodology. As a result, wireless operators would not only need to continue grappling with the challenges of GSA-based license areas, but also to continually cope with the arbitrary distinction between GSA-based license areas and county-based license areas, which would vary unpredictably from channel to channel even on the same tower. Failure to rationalize all license areas would also further complicate the many challenges already identified in the record related to auctioning the remaining spectrum. The resulting chaos would only serve to hinder deployment to currently unassigned areas, whether covered by rationalization or new EBS white space licensees.

Excluding *any* licensee from the rationalization process will obviously result in areas of unrationalized spectrum—areas where license areas do not follow standardized and easy-to-identify boundaries. As noted above, WCA has called on the Commission to rationalize all incumbent licenses "by expanding *each* GSA to the county boundary" to avoid the technical and operational confusion that would be caused by a patchwork of non-standard GSAs.[39] As Figure 5 illustrates, under a discriminatory approach to rationalization, many areas will be left with the same irregular, difficult-to-license slivers of spectrum that exist today. In Northern California, Pennsylvania, and Kansas, for example, by excluding "national" licensees from rationalization, but allowing other EBS licensees to rationalize to the county boundary, the Commission will just create slivers of uncovered territory—too small and technically impracticable for any new licensee to serve.[40]

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[39] *See* WCA Reply Comments at i, 12-13 (emphasis added).

[40] Notably, this analysis likely includes only a subset of all licenses held by national licensees identified by screening ULS licensing data by licensee name. If a comprehensive list of all licenses held by national licensees were available, this analysis would likely reveal that excluding national licensees is even more harmful.

Figure 5 — Examples of difficult-to-serve slivers of spectrum that would remain with both rationalized and non-rationalized license areas near 1) Wichita, KS; 2) Fort Worth, TX; 3) Tucson, AZ; 4) Sacramento, CA / Reno, NV; 5) Annapolis, MD/York, PA; and 6) Mobile, AL.

Such an approach thwarts deployment because there is no business case to serve such small, non-standard areas independent from networks that have already been deployed in neighboring license areas. For example, Sprint currently leases the EBS license covering York, PA, depicted in image 5 of Figure 5 above, from NACEPF, and has used it to deploy 2.5 GHz wireless broadband service. If that GSA were automatically rationalized, Sprint would immediately be able to extend its network to reach, approximately, an additional 300,000 people.

If national licensees are excluded, however, those slivers of territory around York, PA would have to be separately licensed. This would dramatically increase the cost and delay associated with serving those areas, reducing the likelihood of investment and, in some cases, precluding deployment altogether. York, PA is just one example of this problem. Nationally, FCC data suggest that at least 3 to 4 million people live in areas that would be orphaned if national EBS licensees were barred from the automatic rationalization process on a typical EBS channel.

D. Rationalization Should Not Strand Investment or Disrupt Consumer Services.

The Commission should also ensure existing licensed service areas for current licensees are not taken away in the rationalization process. While achieving its goals through rationalization, the Commission should be mindful to avoid harm—in the form of students, educators, or other broadband users losing access to services provided by EBS licensees;

commercial wireless providers losing access to leased spectrum on which they rely on to reach their subscribers; or disruption to an EBS licensee's ability to provide access to broadband internet service and educational resources.[41]

Unfortunately, some of the proposals in the record of this proceeding[42] would do just that, by dramatically reducing the areas covered by existing EBS licensees, stranding investments made by both commercial lessees and existing EBS licensees, discriminating among EBS licensees, and jeopardizing existing programs/service that more than 150 schools, libraries, and other anchor institutions have told the Commission that they currently rely on every day.[43] Reducing coverage for any GSA that did meet a threshold by covering 50 percent of a county, for example, would strip coverage away from major cities, like Las Vegas, and the entire state of Arizona, where operators have built networks that rely on partnerships with EBS licensees and consumers rely on service provided over those networks.[44]

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[41] If the Commission did not protect existing licensed service areas, our analysis shows that a 70 percent rationalization threshold would mean 33 percent of approximately 260,000,000 people who live in current EBS licensed areas would no longer be covered by an EBS licensee as a result of such an approach. Nearly every license area would decrease in size, and some cities and states could be stripped of EBS coverage entirely. For example, rationalization along these lines for channel G1 eliminates all coverage in San Diego, Las Vegas, and the entire states of Arizona and Wyoming, stranding significant investments and risking massive disruptions of service to consumers that rely on EBS service for wireless internet access today. A lower rationalization threshold would be less dramatic, but would still result in extremely disruptive reductions in license coverage area throughout much of the United States.

[42] *See*, *e.g.*, Letter from Scott B. Anderson, Midcontinent Communications, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 18-120 (filed Sept. 26, 2018) (proposing, as illustrated through maps, that the EBS spectrum held by current licensees would be taken away wherever the licensee's current GSA fails to meet a proposed 80 percent geographic threshold). More recent filings support a high rationalization threshold even if the Commission were to maintain existing GSAs for current licensees that do not meet that threshold. *See, e.g.*, Letter from Nicole Tupman, Midcontinent Communications, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 18-120 (filed Mar. 5, 2018).

[43] Over 150 schools, libraries and non-profits have filed comments with the FCC explaining that absent an EBS offering they would have to either curtail existing programs or lose broadband service. *See* NACEPF and Mobile Beacon Reply Comments at 14-17.

[44] A 50 percent rationalization threshold that did not preserve existing coverage areas, for example, would result in the loss of license coverage for about 20,000,000 people on the average EBS channel.

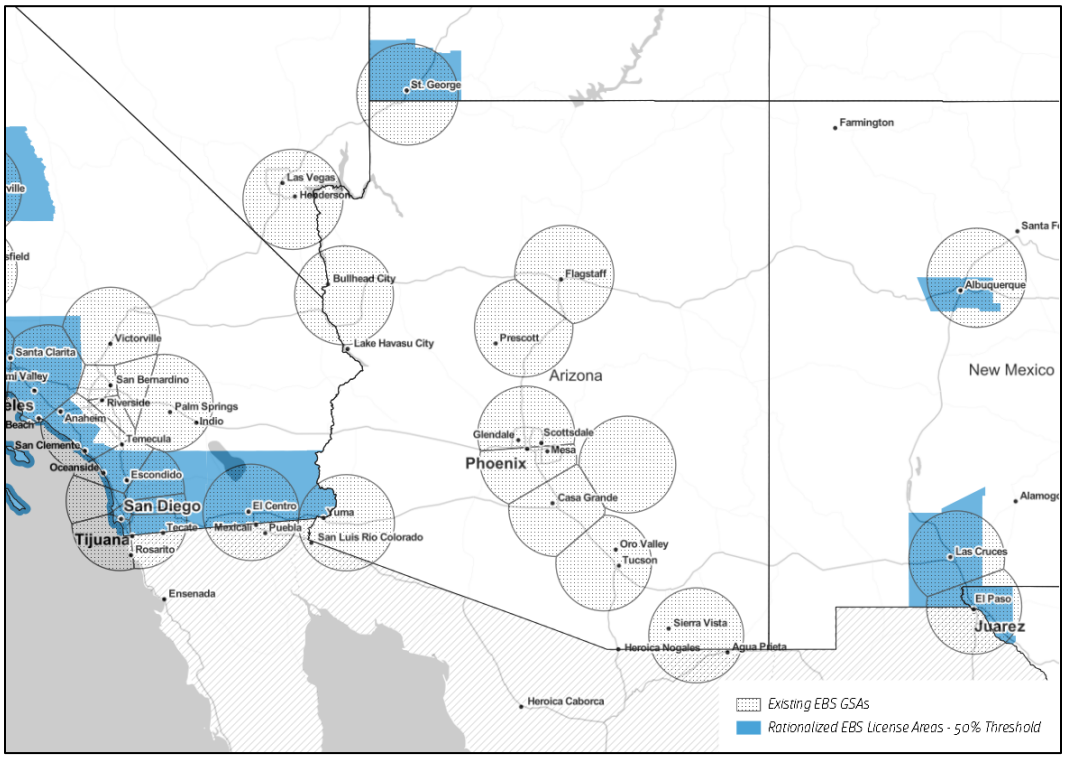

Figure 6 — Comparison of existing EBS license areas to rationalized license areas assuming rationalization to county boundaries with a 50 percent geographic threshold, without preservation of existing license areas. Note the total loss of coverage in Las Vegas, Phoenix, and throughout the entire state of Arizona.

II. THE COMMISSION SHOULD ADOPT BUILD-OUT REQUIREMENTS FOR RATIONALIZED AREAS TO ENSURE DEPLOYMENT, MITIGATE WINDFALL CONCERNS, AND PREVENT WAREHOUSING.

The Commission has proposed build-out requirements for newly issued EBS licenses, and many parties in the record support the application of the BRS build-out requirements to the newly licensed areas.[45] By attaching reasonable build-out requirements as a condition of rationalization, the Commission can leverage the speed with which current licensees can deploy without sacrificing the end goal—wireless deployment and delivery of broadband service, particularly in rural areas. Adopting the BRS build-out requirements will also standardize build-out obligations across the entire 2.5 GHz band—ensuring that educational EBS spectrum is no less utilized then commercial BRS spectrum.

In establishing build-out requirements, the Commission should make clear the consequences for licensees if they are not met. NACEPF and Mobile Beacon suggest the Commission look to aspects of the 700 MHz build-out rules as a model here. Those rules provide that, at the end of the license terms (which may be accelerated if the licensee fails to

[45] *See* 47 C.F.R. § 27.14(o) (requiring 30 percent service coverage or, for wireless coverage in rural areas, requiring 75 percent of the geographic area of at least 30 percent of the rural areas within the service area).

meet certain interim build-out deadlines),[46] unserved portions of the license area larger than 50 square miles are automatically returned to the Commission and made available for reassignment if the licensee has not met its end-of-term build-out requirement.[47]

These build-out requirements would mitigate concerns that county-based rationalization with a low threshold would result, in some cases, in significant coverage gains for EBS licensees. In the limited number of cases where there is a possibility of a licensee adding a significant amount of new territory, this would typically only occur in areas where counties themselves are especially large, rural areas with low population densities and a greater need to stimulate deployment. Build-out requirements will ensure that licensees will either deploy service in these areas quickly or return the unused area for relicensing to the FCC.

Furthermore, the Commission should design these build-out requirements to maximize licensees' incentives to invest in rural areas. Whichever build-out requirements the Commission adopts should apply specifically to newly licensed areas—deployments within the boundaries of the pre-rationalized GSA should not count towards that requirement in either the numerator or denominator of the build-out calculation.

The Commission should also adopt a build-out requirement based on geography covered, rather than population. The Commission previously concluded that geographic build-out requirements are most effective in encouraging aggressive rural deployments.[48] Population-based requirements, by contrast, lend themselves to overbuilding, and can too easily be met by covering only the most densely populated portions of the license areas—precisely the areas where the incentives created by robust build-out requirements are least needed to encourage deployment. By contrast, for smaller license areas like the county-based licenses proposed here, "effective consequences for noncompliance, when combined with appropriately sized geographic licensing areas, are the most effective way to promote rapid service to the public, especially in rural areas."[49]

NACEPF and Mobile Beacon reiterate that the Commission should reject any proposal that would allow this valuable spectrum to be warehoused.[50] Reasonable build-out requirements are essential to achieving rapid deployment and serving the public interest. And this is no less true for rationalized EBS coverage areas than it is for newly assigned EBS licenses.

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46 *Id.* § 27.14(g)(1).

47 *Id.* § 27.14(g)(2).

48 *See Service Rules for the 698-746, 747-762 and 777-792 MHz Bands,* Second Report and Order, 22 FCC Rcd. 15,289, 15,348 ¶ 155 (2007).

49 *Id.* Notably, the Commission reached this conclusion for 700 MHz spectrum licensed on a CMA basis, a license area far larger than the counties proposed here. Therefore, the Commission's conclusion that geographic build-out requirements are especially appropriate for smaller license areas applies with even greater force here where it contemplates far smaller county-based license areas.

50 *Id*; *see also* NACEPF and Mobile Beacon Reply Comments at 29 (discussing WCA and Sprint's objections to build out requirements for newly rationalized areas).

But the Commission need not abandon the goals and benefits of rationalization to address "windfall" concerns. And, as discussed above, structuring the rationalization process to address such concerns risks creating bigger problems—threatening to hinder investment and deployment, disrupt existing services, strand investment, and leave difficult-to-serve gaps in coverage. The Commission faced a similar choice in the Spectrum Frontiers proceeding, where it decided to convert incumbent Local Multipoint Delivery Service licenses (a point-to-multipoint service with very modest deployment) into mobile licenses covering counties. The Commission's reasoning in that case applies equally here: although the Commission recognized that this conversion could be viewed as a "windfall," it concluded that the benefits of "expediting service" and easing coordination between incumbent and new mobile uses outweighed those concerns.[51]

So too here. Rationalization is the most expedient way to achieve the Commission's goals for the EBS band and to accelerate rural and next generation deployment. The Commission should not abandon it, but rather address any concerns arising from rationalization through reasonable build-out requirements. Otherwise, the Commission risks letting its concerns drive its decisions in ways that undermine its goals from being achieved in the first place.

Respectfully submitted,

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[51] *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 8014, 8031 ¶ 42 (2016).